Remarks/Arguments

Applicant appreciates the helpful feedback and guidance received from Examiner Hirl in the teleconference on March 27 and the "Detailed Action" and "Response to Arguments" section. The claims are amended to reflect the guidance received from Examiner Hirl and to respond to the Office communication.

Claim Objection

Examiner Hirl objected to claims 1, 7, 15, and 23 as follows:

(1) method claim should use "step for" rather than "means for". This should be corrected.

(2) In the response, the applicant is required to cite the specific sections of the specification that are associated with each "step for" limitation.

Applicant appreciates Examiner Hirl's helpful clarification and guidance. The claims are amended and the applicant respectfully responds as follows:

Claims 1

(1) In steps (a), (b), and (c). The "Means for" are replaced by "Step for" in the amended claim. Also, "Step for" are used for the new steps (d) and (e).

(2) The corresponding sections of the specification for the steps are

(a) inputting an existing (**p.9 lines 245-246**) decision tree (**p.9 lines 246-247**) encapsulating the knowledge acquired from practical applications (**p.1 lines 10-12**)

(b) inputting a set of training samples (**p.9 lines 246-248**)

(c) using the decision tree and the training samples to determine and output a characteristic for at least one decision tree node (**p. 14 lines 388-392**), said characteristic selected from the group consisting of global characteristics and population characteristics calculating weighted global class training sample proportion of the at least one decision node (**section II.1, P. 14-16**)

(d) receiving an input sample; (**p. 18 lines 499-505**)

(e) using the characteristic to regulate the decision tree for making robust decisions (**p. 16, lines 452-455, p.14 lines 390-391**) on the input sample in

decision system applications such as automatic process control, automatic target recognition and machine vision (**p.1 lines 8-9**)

Claims 7

(1) In steps (a), (b), (c) and (d). The "Means for" are replaced by "Step for" in the amended claim. Also, "Step for" are used for the new steps (e) and (f).

(2) The corresponding sections of the specification for the steps are

(a) inputting an existing (**p.9 lines 245-246**) decision tree (**p.9 lines 246-247**) encapsulating the knowledge acquired from practical applications (**p.1 lines 10-12**)

(b) inputting a plurality of characteristics **p. 14 lines 388-392)** selected from the group consisting of global characteristics and population characteristics calculating weighted global class training sample proportion from at least one terminal node of the decision tree (**section II.1, P. 14-16**)

(c) determining the confidence value (**p. 16, lines 455-456)** for each of the plurality of said characteristics as the ratio between characteristic value of a class and that of all classes (**p. 16, lines 457-458)**

(d) determining and outputting an integrated confidence value for each class of said at least one terminal node (**p. 17 lines 472-478**)

(e) receiving an input sample; (**p. 18 lines 499-505)**

(f) integrating the confidence value using local and consistent global information for making robust decisions on the input sample in decision system applications (**p.17 lines 479 – 488**) such as automatic process control, automatic target recognition and machine vision (**p.1 lines 8-9**)

Claims 15

(1) In steps (a), (b), (c) and (d). The "Means for" are replaced by "Step for" in the amended claim. Also, "Step for" are used for the new steps (e) and (f).

(2) The corresponding sections of the specification for the steps are

(a) inputting an existing (**p.9 lines 245-246**) decision tree (**p.9 lines 246-247**) encapsulating the knowledge acquired from practical applications (**p.1 lines 10-12**)

(b) inputting a set of training samples (**p.9 lines 247-248**)

(c) generating a regulated measure using the decision tree and the training samples selected from the group consisting of integrated confidence values (**p. 19 lines 539-540**) and reliability measures comparing local, global, count and population confidences (**p.21 lines 582-586**)

(d) determining the accuracy values using the regulated measure under two separate nodes or combined node conditions for a non-terminal node of the tree having two descending terminal nodes using the regulated measure under two separate nodes or combined node conditions (**p. 21-22 lines 597-609**)

(e) pruning the terminal nodes by combing the two terminal nodes and converting the associated non-terminal nodes into one terminal node if combined node accuracy value is greater than the two separate node accuracy value (**p. 19 lines 525-536**)

(f) outputting a simplified decision tree for avoiding over-fitting of data allowing robust decisions (**p. 18 lines 516-517**) on new data in decision system applications such as automatic process control, automatic target recognition and machine vision (**p.1 lines 8-9**)

Claims 23

(1) In steps (a), (b), (c) and (d). The "Means for" are replaced by "Step for" in the amended claim. Also, "Step for" are used for the new steps (f), (g) and (h).

(2) The corresponding sections of the specification for the steps are

(a) inputting a set of training samples (**p.9 lines 247-248**) acquired from practical applications (**p.1 lines 10-12**)

(b) generating set of candidate thresholds for at least one node (**p. 6 lines 161-169**)

(c) partitioning data at a candidate threshold (**p. 6-7 lines 171-197**)

(d) calculating an evaluation function (**p. 22 lines 617-619**) selected from the set consisting of integrated confidence value (**p. 19 lines 539-540**) and reliability measures comparing local, global, count and population confidences (**p.21 lines 582-586**)

(e) select the partition for the node as the one that maximizes the evaluation function (**p.7 line 199**)

(f) output a highly robust decision tree classifier using the partition for the node (**p. 22 lines 613-616**)

(g) receiving an input sample; (**p. 18 lines 499-5**)

(h) using the highly robust decision tree classifier for robust decisions on the input sample in decision system applications such as automatic process control, automatic target recognition and machine vision (**p.1 lines 8-9**)

Claim Rejections – 35 USC §101

Examiner Hirl stated that:

(1) If the applicant in the independent claims provided a limitation such as "Outputing ... (insert the result) ... for (purpose or use ... which is a specific practical application)", then the 35USC 101 rejections maybe over come.
(2) Applicant should remember that the preamble is not normally recognized for claim limitations.

Applicant appreciates Examiner Hirl's helpful guidance. The independent claims 1, 7, 15, and 23 are amended accordingly. The applicant respectfully responds as follows:

Claim 1

(1) Step (c) is amended to clearly stated "**output** a characteristic"

(2) Step (d) is added to clearly state the "receiving an input sample."

(3) Step (e) clearly states "the characteristic **output** to regulates the decision tree **for** making robust decisions on the input sample in decision system **applications such as automatic process control, automatic target recognition and machine vision."**

(4) Move the specific application types from the preamble to step (e) for clarifying the limitation.

Claim 7

(1) Step (d) is amended to clearly stated "**outputting** an integrated confidence value for each class of said at least one terminal node"

(2) Step (e) is added to clearly state the "receiving an input sample."

(3) Step (f) is added to clearly state "**for** making robust decisions on the input sample in decision system **applications such as automatic process control, automatic target recognition and machine vision."**

(4) Move the specific application types from the preamble to step (f) for clarifying the limitation.

Claim 15

(1) Step (f) is added to clearly stated "**outputting** a simplified decision tree **for** avoiding over-fitting of data allowing robust decisions on new data in decision system **applications such as automatic process control, automatic target recognition and machine vision**."

(2) Move the specific application types from the preamble to step (f) for clarifying the limitation.

Claim 23

(1) Step (f) is added to clearly stated "**outputs** a highly robust decision tree classifier

(2) Step (g) is added to clearly state the "receiving an input sample."

(3) Step (h) is added to clearly state the purpose as "**for** robust decisions on the input sample in decision system **applications such as automatic process control, automatic target recognition and machine vision**."

(4) Move the specific application types from the preamble to step (h) for clarifying the limitation

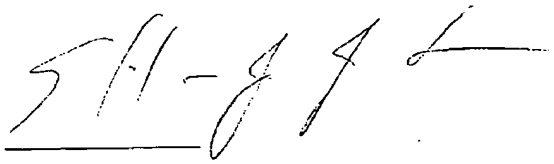
Conclusion

In view of the above remarks and arguments, applicant submits that the amendment to the independent claims overcomes claim objection and claim rejections under 35 USC §101. Therefore applicant submits that this application is in condition for allowance, which action applicant respectfully solicits.

Conditional Request for Constructive Assistance

If for any reason this application is not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to MPEP para. 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,



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